

PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q81988

Akihiro SHIMADA

Appln. No.: 10/500,572

Group Art Unit: 2834

Confirmation No.: 5252

Examiner: Hanh N. NGUYEN

Filed: July 1, 2004

For: MAGNETIC BEARING DEVICE

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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I. REAL PARTY IN INTEREST

Based on the information supplied by the Appellants, and to the best of Appellants' legal representative's knowledge, the real party in interest is the Assignee, Mitsubishi Denki Kabushiki Kaisha.

II. RELATED APPEALS AND INTERFERENCES

Appellants, as well as Appellants' assigns and legal representatives, are unaware of any appeals or interferences which would be directly affected by, or which directly affect or have a bearing on, the Board's decision in the pending case.

III. STATUS OF CLAIMS

Claims 1-5 are all the claims pending in the present application. Claims 3-5 are allowed. Claims 1 and 2 have been finally rejected, and are the subject of this appeal. The pending claims are set forth in the Appendix.

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IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the Office Action dated April 30, 2007.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

An exemplary embodiment of the present invention relates to a magnetic bearing apparatus. *See, e.g., claim 1.* The magnetic bearing apparatus includes: a rotatable rotary member in which a radial magnetic bearing rotor (e.g., *Fig. 1, elements 2a, 2b; page 8, lines 17-26*) and an axial magnetic bearing disc (e.g., *Fig. 1, element 3; page 8, lines 17-26*) are secured to a rotary shaft; electromagnets (e.g., *Fig. 1, radial magnetic bearing stators 5a, 5b; page 9, lines 13-21*) that are arranged around said rotary member via a small gap; and a case (e.g., *Fig. 1, frame 10*). The apparatus further comprises: cooling wind producing means (e.g., *Fig. 1, elements 15, 16*) for producing cooling wind of a low temperature using a driving force of said rotary member; and a cooling wind flow path (e.g., *Fig. 1, tube 20*) through which the low-temperature cooling wind produced by said cooling wind producing means is to flow into said magnetic bearing apparatus (e.g., *page 12, line 10 - page 17, line 2*).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claim 1 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Traxler et al. (U.S. Patent No. 5,720,160) in view of Muszynski (U.S. Patent No. 5,814,908).
2. Claim 2 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Traxler et al. in view of Muszynski and further in view of Millman (U.S. Patent No. 3,690,317).

VII. ARGUMENT

A. Traxler and Muszynski do not render claim 1 unpatentable under 35 U.S.C. § 103(a).

With respect to claim 1, Appellant submits that the applied references do not disclose or suggest at least, "cooling wind producing means for producing cooling wind of a low temperature with using a driving force of said rotary member," as recited in claim 1. The Examiner acknowledges that the primary reference of Traxler does not disclose the above-quoted feature, however the Examiner believes that Muszynski discloses this feature.

Appellant respectfully submits that the claimed cooling wind producing means constitutes the magnetic bearing apparatus; the claimed rotary member also constitutes the magnetic bearing apparatus. A driving force of the rotary member (which constitutes the magnetic bearing apparatus) is used to produce cooling wind of a low temperature. Muszynski is directed to a separate apparatus for providing ventilating air into a housing of a separate and different electric machine. Although Muszynski does discuss a rotary member, said rotary member of Muszynski does not constitute a magnetic bearing apparatus, as the apparatus of Muszynski is an entirely separate mechanism for providing ventilating air into a housing of another machine. Combining Muszynski with Traxler would simply produce a magnetic bearing apparatus with a separate apparatus for providing ventilation to said magnetic bearing apparatus. Therefore, clearly the production of cooling wind would not be based on a driving force of a rotary member that constitutes a magnetic bearing apparatus (but, instead would be based on the rotary member of a separate apparatus).

In response, the Examiner simply alleges, "...the Examiner does not try to incorporate two different machines into a new machine. The Examiner only use[s] the teaching of

Muszynski to apply the cooling means (fan blades, cooling passage) to the magnetic bearing apparatus." *See Office Action dated April 30, 2007.*

In response, Appellant maintains the argument set forth above and also submits that even if, *arguendo*, Muszynski discloses cooling wind producing means, there is no teaching or suggestion of the specific claimed arrangement of the magnetic bearing apparatus. Specifically, as indicated above, although Muszynski does discuss a rotary member, there is no teaching or suggestion that said rotary member of Muszynski constitutes a magnetic bearing apparatus.

Yet further, Appellant submits that the present invention, as recited in claim 1, can achieve, for example, a functionality beyond what is in the prior art, e.g., a self-cooling magnetic bearing apparatus.

At least based on the foregoing, Appellant maintains that independent claim 1 is patentably distinguishable over the applied references, either alone or in combination.

A. Traxler, Muszynski and Millman do not render claim 2 unpatentable under 35 U.S.C. § 103(a).

First, Appellant submits that claim 2 is patentable at least by virtue of its dependency from independent claim 1. Millman does not make up for the deficiencies of the other applied references.

Further, Appellant submits that one of ordinary skill in the art would not have been led to combine Millman with either Traxler or Muszynski at least because Millman is directed to a totally different technology area than that of the other applied references. Millman is directed to a medical device, specifically a sonic nebulizer. A nebulizer is a device used to administer medication to people in forms of a mist. The nebulizer as discussed in Millman is a specialized device in the medical field. Because the technology area of a nebulizer is so specialized and it

involves techniques that can involve the life and death of the individuals using the nebulizer, one of ordinary skill in the art would not simply combine the technology of the nebulizer with other inventions that do not involve the techniques specific to nebulization.

Therefore, at least based on the foregoing, Appellant submits that claim 2 is patentably distinguishable over the applied references, either alone or in combination.

Conclusion

In summary, at least based on the foregoing, Appellants submit that the Examiner has not demonstrated that each and every feature of the claimed invention, as set forth in claims 1 and 2, are taught and/or suggested by the applied references. Since each and every limitation is not satisfied by the prior art, Appellants submit that claims 1 and 2 are NOT unpatentable over the applied references, either alone or in combination.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: December 31, 2007

CLAIMS APPENDIX

CLAIMS 1-5:

1. A magnetic bearing apparatus comprising: a rotatable rotary member in which a radial magnetic bearing rotor and an axial magnetic bearing disc are secured to a rotary shaft; electromagnets that are arranged around said rotary member via a small gap; and a case housing them, wherein

 said apparatus further comprises: cooling wind producing means for producing cooling wind of a low temperature using a driving force of said rotary member; and a cooling wind flow path through which the low-temperature cooling wind produced by said cooling wind producing means is to flow into said magnetic bearing apparatus.

2. A magnetic bearing apparatus according to claim 1, wherein said cooling wind producing means comprises: high-speed air flow producing means for producing a high-speed air flow using the driving force of said rotary member; converting means for converting the high-speed air flow produced by said high-speed air flow producing means, to a vortex flow; an air flow path through which the high-speed vortex flow converted by said converting means is to flow; and a control valve which is disposed on a side of said air flow path opposite to said converting means.

3. A magnetic bearing apparatus comprising: a rotatable rotary shaft to which a radial magnetic bearing rotor and an axial magnetic bearing disc are secured; electromagnets which are arranged with a small gap with respect to said radial magnetic bearing rotor and said axial magnetic bearing disc; and a case housing them, wherein

said apparatus further comprises: cooling wind producing means that produces cooling wind of a low temperature, and that has: fins which are disposed on said rotary shaft, and which produce an axial air flow by a driving force of said rotary shaft; a generator which is fixed with a predetermined gap with respect to said fins, and which produces a high-speed vortex flow; a tube through which the high-speed vortex flow produced by said generator is to flow; and a control valve which is disposed on a side of said tube opposite to said generator; and a cooling wind flow path through which the low-temperature cooling wind produced by said cooling wind producing means is to flow into said magnetic bearing apparatus.

4. A magnetic bearing apparatus according to claim 3, wherein said cooling wind flow path is disposed in said rotary shaft portion so as to axially elongate.

5. A magnetic bearing apparatus according to claim 3 or claim 4, wherein said cooling wind flow path has: a cooling wind flow path disposed in said case; and a pipe which guides the low-temperature cooling wind to said cooling wind flow path disposed in said case.

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EVIDENCE APPENDIX:

NONE.

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RELATED PROCEEDINGS APPENDIX

NONE.

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Submitted herewith please find an Appeal Brief. The statutory fee of \$510.00 is being charged to Deposit Account No. 19-4880 via EFS Payment Screen. The USPTO is also directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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